Total Cost Involved Engineering Inc.

1937-1939 Chevy Air Bag Retro Fit Kit

Read these instructions before starting any work

Note: A qualified welder should do all welding. A qualified mechanic should do the wheel alignment and brake installation. During the final assembly use a thread-locking compound such as Loctite 271.

These instructions are used in several kit forms and may include more information than you need for your kit's installation. Please keep this in mind.

Preparing the frame:

1. Mark the location of the axle centerline on the frame.
2. Unbolt all the old suspension and steering components.
3. Tack weld two braces 4" forward of the axle center line to the top and bottom of the frame. (This will keep the frame from moving when the crossmember is removed.)
4. Remove the original cross member by drilling out the attaching rivets.
5. Weld in the boxing plates.
6. Finish grind the welds

Installing the lower cross member:

7. Fit the cross member squarely against the bottom of the frame with the rack and pinion mounts on the front. The centerline of the cross member should be on the axle centerline.
8. The basic location of the cross member is given in the figure. Check your wheel base to determine the correct location for your front suspension.
9. Tack weld the lower cross member to the frame.

Installing the spring towers:

10. Position the spring towers on the top of the frame centered on the axle centerline. The towers should be outboard of the frame and mounted such that they slope down to the rear of the vehicle. (The angle of this slope should not be changed, as it controls the amount of anti-dive).
11. Tack weld the spring towers in place.

Installing the retro fit kit:

12. Locate the bump stop against the outside of the frame and the back side of the spring tower. The bottom of the bracket should be ½" below the bottom of the frame.
13. Tack weld the bracket to the frame. If you are using the bolt-on type, then you can clamp them in place.
14. Locate the upper shock mount 4 ½" behind the spring hat, and ½" below the top of the frame and tack weld in place. If you are using the bolt-on type, then you can clamp them in place.

Part # TCIE238

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Checking for alignment: (when performing this operation only tighten the fasteners enough to contain the parts and prevent them from moving, this way the same fasteners may be used when you final assemble the parts to the required torque).

15. Install the control arms with the acorn nut in the front and the nylox nut in the rear. Do not tighten completely.
16. Screw in the 90° air fitting so that it faces away from the center and install the upper spring adapter to the air spring using the 3/8-16x1" bolts with the 7/16" head.
17. Install the air spring on the lower control arm with regular 3/8-16x1" bolts and washers. The slot in the spring adapter should be pointing to the rear of the vehicle and the adapter should be leaning away from the vehicle. If not swap side with the adapters.
18. Slide the upper air spring adapter in the spring tower and fasten with 7/16-20x3" bolts and cupped washers. The lower control arm has slots to allow the air spring to be positioned so that the bottom of the spring moves up and down directly below the top of the spring. Adjust the spring as necessary using the slots.
19. Install the front shocks with 7/16-20x3.5" bolt, flat washers, and nylock nut.
20. Install the upper control arm using the "T" bolts, flat washers, and nylock nuts.
21. Attach spindles.
22. Install the rack and pinion.
23. Raise the lower control arm until it is level. (This is the ideal ride height.)
24. Align the front suspension.
25. Check that the bump stop hits the lower control arm about ½" before the air spring reaches full bottom (the spring should be 3.3 inches minimum at this point), and that the shock limits the extension of the air spring before the air spring is full extended (7.7 inches maximum). The air spring has 4.9" of travel, from 2.8" tall to 7.7" tall. The air spring has no internal device to limit its movement in either direction. It is very important that the shock limits the amount of extension possible, and that a bump stop is used to limit the compressed height of the air spring to prevent any damage to the spring or vehicle.
26. If any components need to be moved, move them and recheck the location of the bump stop and shock absorber.
27. Unbolt the spindles, shocks, air springs, control arms, and the rack and pinion.

Final assembly:

28. Final weld all the components in place. For the bolt-on shock brackets and bolt-on bump stops, use a transfer punch mark the holes, the drill them to 5/16. Be careful not to make the holes larger. Clean the chips away. Do not install the brackets yet!
29. Remove the two temporary cross members in front of the new cross member.
30. The chassis and suspension parts can now be painted and prepped for final assembly.
31. Reattach the air spring with anti-roll-over plated on top and bottom, control arms, shocks, spindles, and brakes. Make sure to use thread locking compound where applicable. Fasten the bolt-on brackets using the 3/8 self-tapping bolts and a thread locking compound such as Loctite 271. Once the self-tapping bolts are in, they are not to be removed!
32. Re-align the front suspension and plumb the airlines. When routing the airlines, keep them away from high heat sources and anything that might pinch or sever them. Once the air and electrical plumbing is finished, check for leaks around the fittings using soapy water. Once you have determined there are no leaks, you're new suspension is ready to cruise!

Alignment specifications:

Camber **0°**
Caster **5°**
Toe in **1/16"**

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All measurements taken with the vehicle at ride height.

Torque:	3/8 self-tapping...	30ft=lbs
	3/8 =16 x 1" ...	20ft=lbs attaches air spring
	7/16 =20 x 3" ...	30ft=lbs

POSITIONING CROSSMEMBER ON FRAME RAILS